REMARKS

By the present Amendment, the specification has been amended to correct the reference to Table 2 on page 46 of the specification. In addition, claim 1 has been amended to correct a grammatical error and a typographical error with respect to the recited storage elastic modulus (E') of the base film (see the description provided on page 12, lines 17-18). In addition, claim 1 has been amended to recite that the adhesive force of the surface protecting adhesive film for the semiconductor wafer measured on the basis of a method defined in JIS Z0237 using a SUS304-BA plate as an adherend, at a peeling rate of 300 mm/min and a peeling angle of 180° is from 1 N/25 mm to 15 N/25 mm consistent with the description provided at page 24, lines 22-26 of the specification.

As now recited in claim 1, the surface protecting adhesive film comprises a base film having a defined storage elastic modulus and thickness and an adhesive layer of 5 to 50 μm in thickness formed on one surface of the base film wherein the adhesive layer comprises 100 weight parts of a polymer (A) having a functional group capable of reacting with a cross-linking agent and a temperature (Ta) in a range of from -50°C to 5°C at which tan δ of a dynamic viscoelasticity of the polymer(A) is maximized, from 10 weight parts to 100 weight parts of a polymer (B) having a functional group capable of reacting with a cross-linking agent and a temperature (Tb) in a range of from more than 5°C to 50°C at which tan δ of a dynamic viscoelasticity of the polymer(B) is maximized, and from 0.1 weight part to 10 weight parts of a cross-linking agent (C) having two or more cross-linkable functional groups in a molecule based on 100 weight parts of total amount of the polymers (A) and (B), wherein the adhesive force of the surface protecting adhesive

film for the semiconductor wafer measured on the basis of a method defined in JIS Z0237 using a SUS304-BA plate as an adherend, at a peeling rate of 300 mm/min and a peeling angle of 180° is from 1 N/25 mm to 15 N/25 mm.

The evidence provided in the specification demonstrates the importance of the features recited in the claims of record. More specifically, by following the teachings of the present invention, one can obtain a surface-protecting adhesive film for a semiconductor wafer that can adhere closely to uneven surfaces of a wafer and prevent contamination and breakage due to penetration of grinding water on the wafer surface. In addition, upon completion of the grinding procedure, the adhesive film can be peeled from the wafers without wafer breakage and without adhesive residue. In this regard, the recited adhesive force contributes to this substantial advantage. The advantages which can be obtained in accordance with the present invention are illustrated in the results provided in Table 1 on page 45 of the specification.

The evidence provided in the specification further shows that when the conditions of the present invention are not followed, substantially inferior results can occur as illustrated by the Comparative Examples provided in Table 2 on page 46. For instance, when the quantity of polymer (B) is lower than the amount defined in claim 1, contamination occurs while when the quantity of polymer (B) is greater than the amount defined in claim 1, wafers are broken and a high level of contamination occurs (see Comparative Examples 1 and 2, respectively). Comparative Example 6 demonstrates that when the temperature at which tan δ is maximized is higher than the defined range for polymer (B), similar inferior results occur. Comparative Example 3 illustrates the importance of the thickness of the adhesive layer while

Comparative Examples 4 and 5 demonstrate the importance of the defined amount of crosslinking agent. Comparative Examples 7 and 8 show the adverse consequences of omitting polymer (B) and polymer (A), respectively.

The cited prior art, namely Overbeek et al., U.S. Published Application No. 2003/0055171 and Bell et al., U.S. Published Patent Application No. 2005/0158475, have nothing to do with a surface protecting adhesive film for a semiconductor wafer and therefore are not designed to meet the important requirements that are needed to be successfully be used in this capacity. Instead, Overbeek et al. describes a polymer compound which is suitable for coating wooden substrates, plastics, paper, leather and metal substrates (see paragraph [0122]). A polymer compound is formed as an aqueous dispersion and is a combination of an acrylic polymer A having a glass transition temperature of not more than 30°C and an acrylic polymer B having a glass transition temperature of at least 35°C and a self-dispersible, ionically stabilized polymer having olefinically unsaturated bond functionality capable of imparting radiation-curability. The Examiner has referred to the examples starting on paragraphs [0172] and [0173] which includes an acrylic polymer having a glass transition temperature of 85°C in paragraph [0174].

Aside from the fact that Overbeek et al. does not relate to a surface protecting adhesive film for a semi-conductor wafer, by following the teachings of the publication, and particularly the Example referred to by the Examiner, those of ordinary skill in the art would be led to a material which does not have the claimed polymer (B) with the defined tan δ temperature of 5 to 50°C. Instead, one would be led to a polymer having a much higher tan δ temperature and this understanding would be confirmed by reliance on Bell et al. which describes the presence of a

polymer having a glass transition temperature of 105°C which is substantially higher than the polymer of Comparative Example 6 which uses a copolymer have a tan δ temperature of 58°C and results in broken wafers and contamination. Contrary to the assertion by the Examiner, one cannot ignore teachings in the patent which would lead away from the present invention.

As an additional point of consideration, the claims of record now recite the defined adhesive force of 1 N/25 mm to 15 N/25mm. As explained in the paragraph bridging pages 24 and 25, this adhesive force is selected so that the surface protecting adhesive film can provide sufficient adhesion to permit grinding to be successfully performed, while permitting the film to be peeled from the wafer without causing breakage. Overbeek et al. is totally unconcerned with this feature since it again does not relate to a surface protecting adhesive film for a semiconductor wafer. Moreover, as a coating material, peelability would not be desirable. Accordingly, Overbeek et al. falls far short from being sufficient to support a rejection of the claims now of record.

Bell et al. does not remedy the substantial deficiencies of Overbeek et al. The publication describes films coated with an anchor layer and optionally provided with a metallized layer and/or adhesive coat. The anchor coating comprises a polymer comprising (a) an optionally substituted α,β-carboxylic acid optionally of high acid value with the polymer preferably having a low glass transition temperature; (b) a polymer comprising an optionally substituted α,β-carboxylic acid optionally of a low acid value and preferably having a high glass transition temperature; and (c) a cross-linker which cross-links the coating composition and increases the glass transition temperature thereof.

From the description provided in Bell et al., it is evident that the publication does not in anyway relate to a surface protecting adhesive film for a semiconductor wafer and therefore the disclosed material is not designed to have characteristics important for this function which are illustrated in Table 1 of the present application. Furthermore, by reciting the function as an anchor layer, which is described in paragraph [0006] as promoting good adhesion, it is clear that Bell et al. would not lead to the presently claimed invention with the defined adhesive force that permits peelability. Accordingly, Bell et al. would not in any way lead to the presently claimed invention even when considered with Overbeek et al.

For all of the reasons set forth above, applicants respectfully submit that the claims now of record are patentable over the hypothetical combination of documents set forth in the Official Action (which again would actually lead away from the presently claimed invention), and therefore request reconsideration and allowance of the present application including method claims 6 and 8 which should be rejoined pursuant to the provisions provided in M.P.E.P. §821.04(b).

Should the Examiner wish to discuss any aspect of the present application, he is invited to contact the undersigned attorney at the number provided below.

Respectfully submitted,

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